BEHAVIORAL SENSATION SEEKING CORRELATES WITH ADDICTION RISK BEHAVIORS AND SELF-REPORTED SENSATION SEEKING

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Background: Trait sensation seeking (SS) substantially influences the initiation of substance use. We created a behavioral task that presents choices and consequent olfactory stimuli in real time, which is designed to model real-world choices of highly varied, novel, and intense stimuli, despite risks associated with such choices. We hypothesized that behaviorally quantified SS would correlate with risky behaviors and self-reported SS tendencies.

Methods: Undergraduate students (*n*=145, mean age=21±5, *n*=84 male, *n*=106 Caucasian) performed an odorant choice task, self-report SS assessments, and the Risky Behaviors Scale (RBS). Subjects used a computer mouse to choose between STANDARD ("weak, pleasant") and VARIED ("stronger, likely pleasant but possibly unpleasant") odors. An air-dilution olfactometer then delivered an odorant to subjects' nostrils. Participants also rated odor intensity and pleasantness. Participants' preference for VARIED was the primary metric of interest (Choice Ratio).

Results: Choice Ratio correlated with self-reported SS assessments (rs>0.30, ps<0.001) and negative risky behaviors (strong trend: r=0.16, p=0.057). In men only, Choice Ratio correlated with endorsement of drug and alcohol risky behaviors (r=0.25, p=0.022).

Conclusions: This SS task provides actual sensory consequences, is related to self-reported SS tendencies, and correlates with self-reported risk taking. Behaviorally quantified SS can be used in neuroimaging to probe brain patterns underlying SS tendencies. Further testing in riskier samples will expand external validity. A portable version is currently in development. *K01AA020102 and HRSA 10-175 to MAC, R25GM109432 to SMB under the mentorship of MAC, K99AA023296 to BGO.*